using forward transformation profiles that characterize the source and destination color imaging systems to generate respective sets of device-independent color values for the source and destination color imaging systems;

calculating color conversions for different combinations of source and destination color imaging systems by iteratively [recursively] reducing differences between the respective sets of device-independent color values;

constructing color maps describing relationships between the different combinations of source and destination color imaging systems using the color conversions and user preferences;

storing the color maps; and

when a user requests a transformation for a selected combination of the source and destination color imaging systems and selected user preferences:

determining whether one of the color maps corresponds to the selected combination and the selected user preferences,

if so, retrieving the corresponding color map, and

if not, constructing a new color map for the selected combination and selected user preferences.

2. (Twice Amended) A method, according to claim 1, further comprising iteratively [recursively] reducing differences between black channel information.

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6 7. (Twice Amended) A method for transforming colors between source and destination color imaging systems, a method comprising:

using profiles that characterize the color imaging systems to generate device-independent color values for the source color imaging system, the device-independent color values having a same dimensionality as the source color imaging system to generate black channel values independently of other color channel values;

using the profiles to perform a color conversion for converting the device-independent color values to device-dependent values of the destination color imaging system;

using the color conversion and user preferences to define a color map for transforming colors between the color imaging systems;

applying the color map to transform colors between the color imaging systems in the event the color map was defined based on existing user preferences; and

in the event the color map was not defined based on the existing user preferences, using the color conversion and the existing user preferences to redefine the color map, and applying the redefined color map to transform colors between the color imaging systems.

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9 ~~10~~. (Twice Amended) For use in transforming colors between source and destination color imaging systems, a method comprising:

(a) using profiles characterizing the color imaging systems to generate device-independent color values for the source color imaging system, the device-independent color values having a same dimensionality as the source color imaging system to generate black channel values independently of other color channel values;

(b) using the profiles to perform a color conversion for converting the device-independent color values to device-dependent values of the destination color imaging system;

(c) using the color conversion to improve the accuracy of the color conversion relative to a quality threshold;

(d) returning to step (c) until the color conversion satisfies the quality threshold;

(e) using the color conversion and user preferences to define a color map for transforming colors between the color imaging systems;

(f) using the color map to transform colors between the color imaging systems in the event the color map was defined based on existing user preferences; and

(g) in the event the color map was not defined based on the existing user preferences, using the color conversion and the existing user preferences to redefine the color map, and applying the redefined color map to transform colors between the color imaging systems.

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10 11. (Twice Amended) For use in transforming colors between source and destination color imaging systems, a system comprising:

means for using forward transformation profiles that characterize the source and destination color imaging systems to generate respective sets of device-independent color values for the source and destination color imaging systems;

means for calculating color conversions for different combinations of source and destination color imaging systems by iteratively [recursively] reducing differences between the corresponding sets of device-independent color values;

means for constructing color maps describing relationships between the different combinations of source and destination color imaging systems using the color conversions and user preferences;

storing the color maps; and

when a user requests a transformation for a selected combination of the source and destination color imaging systems and selected user preferences:

determining whether one of the color maps corresponds to the selected combination and selected user preferences,

if so, retrieving the corresponding color map, and

if not, constructing a new color map for the selected combination and selected user preferences.

11 12. (Twice Amended) For use in transforming colors between first and second color imaging systems respectively using first and second color coordinate systems, a method comprising:

(a) generating first device-independent color coordinates as a function of color coordinates in the first color coordinate system;

(b) estimating preliminary color coordinates in the second color coordinate system;

(c) generating second device-independent color coordinates as a function of the preliminary color coordinates;

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(d) adjusting the preliminary color coordinates to reduce an error between the first and second device-independent color coordinates;

(e) returning to step (a) until the error satisfies a quality threshold;

(f) constructing a color map describing a relationship between the first and second color imaging systems as a function of the adjusted color coordinates and user preferences;

(g) using the color map to transform colors between the first and second color imaging systems in the event the color map was defined based on existing user preferences; and

(h) in the event the color map was not defined based on the existing user preferences, using the color conversion and the existing user preferences to redefine the color map, and applying the redefined color map to transform colors between the first and second color imaging systems.

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13 14. (Twice Amended) For use in transforming colors between color imaging systems, a system comprising:

a computer arrangement programmed to

use forward transformation profiles that characterize the color imaging systems to generate respective sets of device-independent color values for the color imaging systems,

calculate color conversions by iteratively [recursively] reducing differences between the sets of device-independent color values, and

construct a color map describing a relationship between the color imaging systems using the color conversions and user preferences; and

a memory, configured and arranged to store the color map,

wherein the computer arrangement is further programmed to:

use the color map to transform colors between the color imaging systems in the event the color map was defined based on existing user preferences; and

in the event the color map was not defined based on the existing user

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preferences, using the color conversion and the existing user preferences to redefine the color map, and applying the redefined color map to transform colors between the color imaging systems.

~~19.~~ (Twice Amended) For use in transforming colors between source and destination color imaging systems, a data storage medium storing a computer-executable program that, when executed,

uses forward transformation profiles that characterize the source and destination color imaging systems to generate respective sets of device-independent color values for the source and destination color imaging systems;

calculates color conversions for different combinations of source and destination color imaging systems by iteratively [recursively] reducing differences between the respective sets of device-independent color values;

constructs color maps describing relationships between the different combinations of source and destination color imaging systems using the color conversions and user preferences;

stores the color maps; and

when a user requests a transformation for a selected combination of the source and destination color imaging systems and selected user preferences:

determines whether one of the color maps corresponds to the selected combination and the selected user preferences,

if so, retrieves the corresponding color map, and

if not, constructs a new color map for the selected combination and the selected user preferences.

~~47.~~ (New) A method for transforming color values between source and destination color imaging devices, the system comprising:

applying forward transformation profiles to transform device-dependent color values to device-independent color values for various source and destination color imaging devices;

reducing error between the source and destination device-independent color values for selected combinations of source and destination color imaging devices;

generating device links based on the error reduction, each of the device links defining a transformation of color values for one of the combinations of source and destination color imaging devices; and

applying, for a selected combination of source and destination color imaging devices, a corresponding device link to transform color values for the selected combination.

46 48. (New) A data storage medium storing a computer program that, when executed:

applies forward transformation profiles to transform device-dependent color values to device-independent color values for various source and destination color imaging devices;

reduces error between the source and destination device-independent color values for selected combinations of source and destination color imaging devices;

generates device links based on the error reduction, each of the device links defining a transformation of color values for one of the combinations of source and destination color imaging devices; and

applies, for a selected combination of source and destination color imaging devices, a corresponding device link to transform color values for the selected combination.

47 49. (New) A data storage medium storing computer program code that defines device links generated by applying forward transformation profiles to transform device-dependent color values to device-independent color values for various source and destination color imaging devices, and reducing error between the source and destination device-independent color values for selected combinations of source and destination color imaging devices, wherein each of the device links defines a transformation of color